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'Probing with the Prototype': Using a Prototype e-Participation Platform as a Digital Cultural Probe to Investigate Youth Engagement with the Environment

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Abstract. This study describes how we used a prototype e-participation platform as a digital cultural probe to investigate youth motivation and engagement strategies. This is a novel way of considering digital cultural probes which can contribute to the better creation of e-participation platforms. This probe has been conducted as part of the research project STEP which aims at creating an e-participation platform to engage young European Citizens in environmental decision making. Our probe technique has given an insight into the environmental issues concerning young people across Europe as well as possible strategies for encouraging participation. How the e-participation platform can be utilised to support youth engagement through opportunities for social interaction and leadership is discussed. This study leads to a better understanding of how young people can co-operate with each other to provide collective intelligence and how this knowledge could contribute to effective e-participation of young people.

Keywords: e-Participation, Youth Engagement, Environmental Policy, Digital Cultural Probe.

1. Introduction

With dwindling participation (especially by young people) then the democratic process becomes less democratic and more dependent on the voices of the few rather than the many. This study aims to better understand what motivates young people to participate in environmental discussions and the policy making process. We describe how we used a prototype e-Participation platform as a Digital Cultural Probe to investigate youth motivation and engagement strategies with environmental policy making. The core contribution of this paper to e-Participation is discussing an exploratory approach to pinpoint engagement of young people with a specific social issue (the environment) along with their engagement with the e-Participation platform created to support and facilitate a wider (EU level) participation with that issue. This study is part of STEP - Societal and political engagement of young people in environmental issues - (http://www.step4youth.eu) an Horizon 2020 project whose goal is to increase and support participation of young European citizens (aged 18-29) in decision making for

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environmental issues. STEP aims to design and release an e-Participation web & mobile platform which will facilitate interaction between policy makers and young people, allowing policy makers to quickly and easily open-up to young people's input for their policy ideas. STEP aims at: providing young people with personalised information on decisions under consultation; giving them the opportunity to express their opinion; informing them on what other people are saying and giving them the opportunity to bring their own issues to the attention of policy makers. European young citizens and policy makers from 5 Pilot cities/regional authorities, in 4 countries (Italy, Spain, Greece & Turkey) are involved in the project. During the project's life time, STEP pilots are expected to involve 8,200 young users and 85 policy makers. In addition, 65 environmental decision making procedures are expected to be tested. One aspect which is paramount for the success of the project is to scope out the level of engagement of young people with environmental issues and to translate this into strategic ideas for the e-Participation platform. In other words: how to pinpoint and relate young people's engagement with the environment to a lasting and meaningful engagement with the e-Participation platform? For investigating this problem we have conducted a digital cultural probe using an early prototype of the STEP platform itself.

Probes have been described by Wallace *et al* [1] as '*directed craft objects used in empathic engagements with individuals around issues centered on self-identity and personal significance'*. This definition fits with the remit for their use in our work, with our aim being to better understand how young people engage with environmental issues that are significant to them. The cultural probe is a qualitative and inspirational research technique originally devised by Gaver et al. [2] which includes open-ended and evocative activities for participants to pursue in their own time to help narrate their lives to technology designers. A Cultural Probe is usually based on a 'toolkit' containing material to aid and inspire this self-reporting, such as a disposable camera, maps and/or a diary. Probes are used for exploring new opportunities – both in term of design and strategic actions – rather than for solving functional problems [3]. An extensive study on the use of cultural probes was carried out by Boehner et al. [4], and they argue that cultural probes are not simply "another technique" for getting data, but frame an alternative account of knowledge production**.** While the original technique was based on a physical kit, the research community has started to use the probe technique with the support of new technologies, such as mobile phones [5] or known social digital media, such as Instagram [6]. While these "digital" probes lose in part the physical and creative aspects, they offer advantages in terms of distribution and collection of the material as well as opportunities for social interactions among participants. For our research we created and conducted a digital cultural probe using an early prototype of the STEP e-Participation platform. By conducting this probe via the prototype we have been able to investigate simultaneously – in an inspirational and design oriented fashion – both engagement with environmental issues and engagement with the e-participation platform itself. For this study we involved fourteen participants from the pilot partners' areas, as well as a number of young citizens in other European countries (UK and Czech Republic).

In what follows we discuss our core findings which, in line with the probe techniques, relate to engaging young people with environmental decision making and with an e-participation platform. Key aspects emerging from our probe are: the type of environmental issues which may be more relevant for young people; the concept of 'the

future' in which young people have higher stakes than current adults; and the role of youth leadership in supporting wider engagement. These aspects can be translated into recommendations for the design and development of the e-Participation platform. The piloting phase can nurture these aspects for facilitating the wider participation of young people, for example by piloting environmental policy discussion around the topics that are more relevant to them. In line with this, in the discussion the paper highlights a number of strategic recommendations for actions.

2. E-Participation, Young People and the Environment

The STEP project is situated within the European context where there is recognition that Europe's future depends on promoting youth participation. Citizen engagement with public policy and decision making is not a new concept, but recently there has been an increase in the number of initiatives to include the general public in policy making. This is also taking place within a context in which there is ample recognition of a wider decline in public participation and social capital [7]. This applies to young people too where, for example, according to recent findings in Europe [8] traditional channels of representative democracy, such as voting at elections only partially stimulate young people's interest in active participation. There is nowadays recognition that citizen engagement and participation can enhance citizen trust in government [9], improves governmental responsiveness [10] governmental legitimacy [11] and policy making [12]. Digital and web platforms have been studied [12][13] and trialed for this scope – in particular, consultation in policy making - with examples such as Liquid Feedback being widely known and discussed [14] as well as the use of established social media platforms in a more bottom-up fashion [15]. There is also recognition that stakeholders should be engaged with crowdsourced actions - at the very start of the policy cycle when agendas are being designed [16]. There is however discussion on whether the use of ICTs really facilitates wider participation in decision making and if the people participating are representative of the population as a whole [17]. Furthermore, as one would expect, there is also a very specific discussion around the use of tailored platforms for supporting young people's participation [18]. There are other European Projects such as EUth[2] or CATCH-EyoU[3] supporting youth e-participation. Discussion around tailored platforms for young people clearly presents the same issues as the general one: consideration of the possibilities offered by e-Participation for young people [19] but also the need to acknowledge difficulties [20].

Engagement with environmental issues can be seen as a sub-area of the wider movement toward facilitating citizens' engagement with decision and policy making [21][22]. However environmental decision making is of particular importance for gaining the participation of young people as decisions taken now will have long-term consequences that will affect future generations. Hence young people, are said, to have higher stakes in the future of the environment [23] than the current adult generations and can provide an invaluable force to shape future positive change [24]. However, data from a recent Eurobarometer [25] shows that young EU citizens (aged 15-24) have

[2] http://www.euth.net/
[3] http://www.catcheyou.net/

far less engagement than older people with issues such as protecting the environment. It is also widely accepted in literature that there is the gap between a positive environmental attitude and the actual action for the environment, ie. a positive attitude does not necessarily translate into action [8]. Literature also emphasizes the importance of peer participation and youth leadership and the opportunity for young people to have dedicated spaces where they can share ideas [24]. Hence as for the general perspective of platforms for the wider engagement in policy making, there could be an expectation of having examples of platforms dedicated to young people's engagement with environmental decision making. However here the state-of-the-art presents initial weaknesses as – from internal analysis conducted for the STEP project – there does not seem to be a relevant presence of e-Participation platforms dedicated to this. Nonetheless, from both a research and innovation perspective the problems identified in this paragraph would still apply: (1) e-Participation needs to be facilitated and not taken for granted because tools are available; (2) there is a gap to be filled between positive attitude toward a policy issues (e.g. the environment) and wider public engagement with decision making and (3) there needs to be an acknowledgment of the unique contribution that young people can bring to decision making. The importance of a well-designed platform to encourage this is vital, as in most areas of life, if something is poorly designed and we don't have to use it, then the chances are that we won't [17].

3. STEP and the Digital Cultural Probe Methodology

In an effort to pinpoint young people's engagement with environmental issues to factors that could facilitate e-Participation we conducted a digital cultural probe directly within a prototype of the STEP platform. In this way we were able to use the platform as a probe to explore new opportunities and the experiential perspective of young people toward the environment. By staging the probe within the STEP prototype we also explored how young people could interact within the e-Participation platform when they present and discuss their ideas about the environment. The STEP technology offers the ability to transform existing communication methods and enhance citizen engagement with environmental policy making. The prototype is based on co:tunity[4] and we used it in a similar way to a closed Facebook group, features allowed :

- Setting up a specific '**challenge**' which engages users in high and low level challenges/tasks. In our case the high level challenge was a 3 week long cultural probe about the perspective that young European citizens have about environmental issues, whereas low level challenges were the specific self-reporting tasks (see later).
- Easy **upload** of images and **posting of** textual descriptions. allowing self-reporting of their experiences (equivalent to a camera and diary in a traditional probe).
- A **user profile**, where participants upload their photo, coupled with a leaderboard where the profiles of those making the most contributions appear.
- Ability to **comment on and "like"** the content posted by other participants, fostering social collaboration and social engagement with the content.

[4] The platform Co:tunity is developed by project partner Kairos, see http://www.cotunity.com

- Promote a **Collective mentality** based on the idea 'Together we can make a difference', where the narrative of the probe was one of young people joining forces to make their voice heard and hence capture the energy and enthusiasm of Youth.

Sixteen participants were invited to the Challenge in the expectations that at least half would participate. For enrolment we relied on pilots and project partners, the number of acceptances was 13 (6 males and 7 females). The probe was launched in mid-November 2015. The STEP Digital Cultural Probe was organized with specific challenges released at weekly time intervals: **Week one** was a gentle introduction to the platform, allowing the participants to log-in and upload their photo; they were asked (Via the platform with an additional email prompt) to make 3 posts to give us an idea about: the environmental issues that concerned them; what they would like to improve and what inspires them when it comes to the environment. **Week two** asked how they usually travel, and about an action that they made for the environment. We also wanted to get a feel for where locally they felt was important / somewhere they liked to visit and also to discuss what areas of their life they felt they could do better with. The challenge about action was included because, as noted in the literature review, there is often a gap between people having a positive attitude toward the environment and actually doing something about it. We wanted our participants to self-reflect on these issues and report on their experiences. The issue of youth leadership – again relevant in literature – was introduced in week two; we wanted participants to self-report on their ideas to improve the environment in their local area if they had the power to change things as the mayor of their town. **Week three** further developed the leadership theme on a larger scale, i.e. at the country level what would they do if they were the prime minister. This theme continued by asking them about where decisions are currently made in their region and by whom. We also wanted to know how they thought others could be motivated to be involved in environmental issues, asking them what the best way would be to do this. This was asked with the intent of making participants reflect on possible strategies for facilitating participation of young people. Participants could also comment on other posts and offer further perspective on what was happing in other areas. Finally participants were asked to contribute to an analytical phase, and give greater accuracy for what topics they deemed 'relevant'. The STEP platform allows posts to be tagged with themes and also to assign relevance scores (1-10). One of us tagged posts at regular intervals and from this certain themes emerged. The platform allows co-analyst participants to plot a 'graph for the themes to chart impact and predictability of the trend.

4. Results of the STEP probe

Initial observations of the participants' interaction with the probe showed that not all the participants had the same level of engagement. About a third of the participants were extremely engaged with the platform, contributing on a regular and ongoing basis and also with more content than what they had been asked to produce. This group of 'very enthusiastic' participants also interacted with others on the platform regularly. This indicated a bottom-up process of youth leadership emerging, where young people in an entirely independent manner were displaying skills and capacity to show how to

conduct our challenge. Another third carried out all the tasks and made rich contributions, but did not show the same level of enthusiasm. This second group were posting and commenting on a more irregular basis. The remaining third made some valuable contributions, but did not complete all the tasks. This of course may also be for issues which are independent from the probe itself (e.g. having exams at University). Overall, the cultural probe challenge generated 143 original posts.

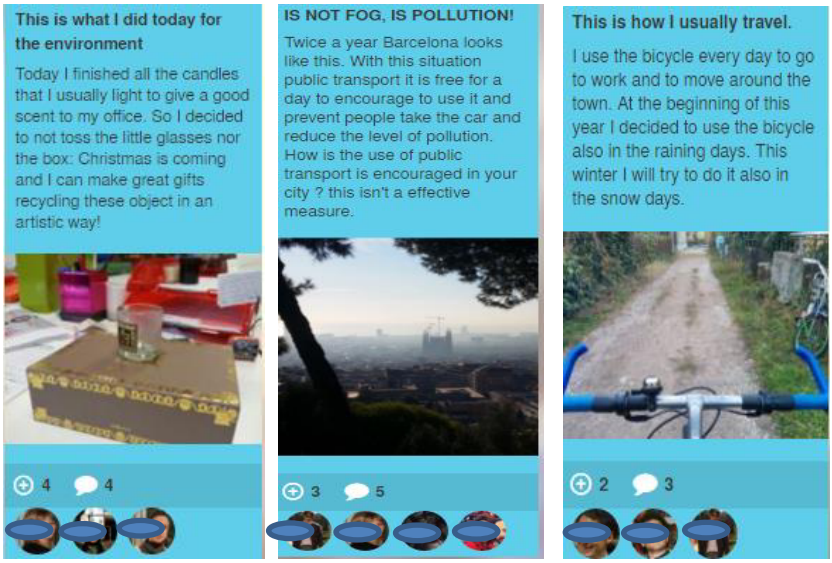

Fig. 1. Example of Posts with comments and likes from other participants

Alessio (Spain), Federico (Italy), Elena (Greece) and Monica[5] (Czech Republic) made the greatest number of contributions and topped the leaderboard. A few participants were curious to know what criteria the platform used to allocate the leaderboard points, which shows that they were looking at those emerging as leaders. It was interesting to see examples of the participants asking questions of the others and stimulating discussion, with Transport, Recycling and Pollution most frequently discussed.

4.1 Taking Action

Two of the questions asked the participants to reflect on something they could improve; the first was a more personal reflection on what they themselves could change. Posts reflected on personal actions such as walking or cycling more, buying products with less packaging, and reducing their energy/water consumption. The second was a more general question and evoked responses such as improving local recycling facilities, having better control over energy and better access to sustainable transport. Other posts gave examples such as converting vegetable oil into Biodiesel. The question asking about an action they had done for the environment evoked posts on issues such as recycling, upcycling, and saving energy or water. A post on upcycling prompted several

[5] All names changed for anonymity

comments, then a flurry of other posts on creative ways to make use of material that would otherwise be thrown away. Posts for encouraging others to act mentioned: inspiration, education, setting good examples and promoting small changes.

The wording of the questions was important; we framed them in the first person – asking specifically what they themselves would do, rather than asking, for example, about what the mayor of their town should do. This type of question promotes greater self-reflection and is likely to increase engagement, not requiring thoughts on existing politicians whom they may have negative feelings towards. The responses were thoughtful insights as to what could be achieved at a local and national level, topics covered improving sustainable methods of transport, cleaning up suburban sidewalks to increase walking/cycling and improving the local areas. Regional actions included rewarding towns for using cleaner methods of transport, giving tax incentives for renewable/alternative energy and for reducing food waste. Others mentioned repealing laws allowing the suns energy to be taxed by the government; setting a good example as a leader and rewarding pro-environmental behaviours.

Trend	Average Significance	No. of Posts
Sustainable Transport	8.3	33
Recycling	8.1	37
Reducing Waste	8.0	40
Energy Saving	8.0	13
Local Environment	7.8	44
Pollution	7.7	35
Natural Habitats	7.7	23
Climate Change	7.6	23
Making Decisions	7.4	25
Saving Water	7.1	9
Sustainable Agriculture	7.0	18
Redevelopment Urban Land	6.9	5

Table 1. Trends identified from the posts and their average significance

Table 1 shows the number of posts made on the topics that emerged from the Challenge. Participants were encouraged to tag posts and give a 'relevance score' via the platform interface, which the 'highly motivated' group did. The average significance score comes from these combined scores. Posts could be tagged with more than one theme: ie. a post on traffic congestion could be tagged with 'sustainable transport' and 'pollution'.

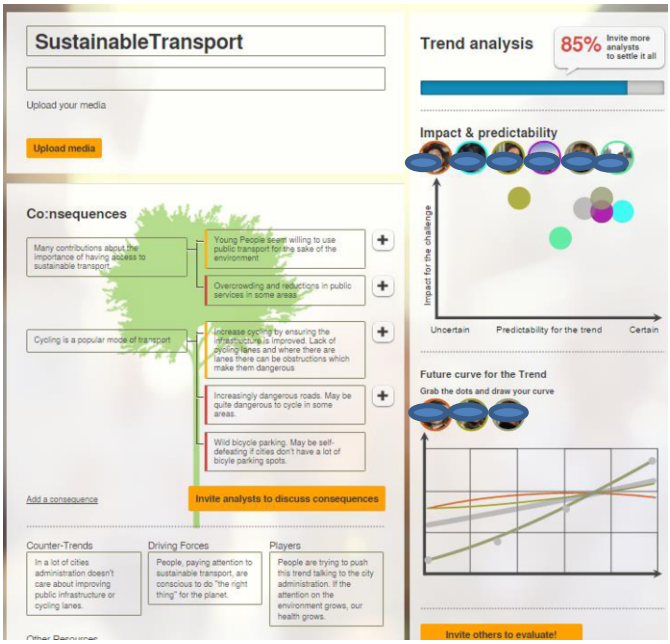

Fig. 2. Examples of Trend Analysis on the STEP (Images of Participants covered)

4.2 Spontaneous Posting and Co-Analysis of Posts by Participants

As the Challenge progressed the highly engaged participants began posting spontaneously on issues that we were not asking them about, this emerged during the second and third weeks and the topics were varied. The 2015 United Nations Climate Change Conference, was held in Paris, from 30 November to 12 December 2015 which coincided with the duration of the probe. Some posts were about this event, such as a link to an article about the fake adverts by artists being posted across Paris[6] protesting against corporate takeover of the Climate talks. A list of 30 actions to combat Climate Change was also posted, showing that the platform was used to raise awareness of issues. The participant listed how many of the actions she made and asked others how many they themselves made – encouraging interaction and reflection. The same participant also posted a link to a documentary about the 'throw away culture'[7]. Another person was very interested in Sustainable agriculture and posted a link to a video on Sustainable Seed production[8] and a detailed post showing how local neighbourhoods could produce organic food from small urban spaces. The fact that spontaneous posts were being made suggests that participants were highly engaged with the platform and with the topics they were posting about.

Once the participants had been given co-analyst rights in week 3 then they were also able to tag posts and carry out theme analysis using the platform functionali-

[6] http://www.thisiscolossal.com/2015/11/brandalism-fake-ads-paris/
[7] https://www.youtube.com/watch?v=mUaCLzbDgm0
[8] https://vimeo.com/126110309

ty, which contributed to the richness of the data generated. Five participants contributed to at least one theme, with some contributing to several different themes, such as sustainable transport (see Figure2), sustainable agriculture, local environment and recycling. The 'Impact and predictability' option was completed more often than the 'Future Curve' trend. It became apparent that for this analysis to work well then it was essential to make clear beforehand the direction of the trend; eg. Cycling, it should be clear that you are asking them to predict if there will be more or less cycling in the future – this affects the way the plots are made on the graphs.

5. Discussion; Recommendations for e-Participation

Due to space limits it has not been possible to show here the richness, complexity and extent of the data and insights we collected from the probe. We will devote some space to a discussion of what inspirational aspects we have learned. The challenges of using Cultural Probes are both practical and methodological and there is debate as to interpret the results, given their 'uncertainty'[26]. This varies between gaining inspiration, of particular lives to obtaining information that seeks to pinpoint the exact needs of the community. For [27] this is symptomatic of the different stances on interpretation, it rather depends on whether it should be open or closed [28]. The open approach sees interpretation as opening up a variety of possibilities whilst the closed sees interpretation as a process of negotiation toward a single and unambiguous understanding [27]). For [29] '*Probes involves recording a point-of-view, while 'in-the-moment*' *and making visible, on one hand, particular actions, places, objects, people etc. and, on the other, wishes, desires, emotions and intentions*'. The posts made during the STEP challenge were rich and insightful and conveyed information about the participants' emotional involvement with the environment. The insights we have interpreted from the posts are about relating the engagement with environmental issue to the engagement with an e-participation platform. The themes that emerged from the posts gave us a deeper understanding of the topics that are important to young people, and what would motivate them to engage in an e-Participation platform. Our participants were more concerned about certain environmental issues such as Sustainable transport and recycling. In piloting the e-participation platform, focusing initially on the discussion of policies that are close to those concerning them most can ensure a better and larger participation. A number of key lessons were learned for the design, piloting and sustainability of STEP:

1. **Focus on issues of interest**: the piloting of the e-Participation platform should focus on the discussion of policies/issues that are of direct interest to Young People: transport, food, Reducing Waste /recycling. This is likely to increase participation.
2. **Promote trust**: There is some level of mistrust between young people and policy action and this inevitably will reflect on their participation. While it's clearly outside the scope of STEP to bridge this gap, some design solutions for the platform may be considered including trust /reputation mechanisms for rating the relevance of proposed policies as well as their implementation. The look and feel of the platform should also aim to promote trust.
3. **Give feedback**; inform young people how their previous actions have made a difference, state how any information was used and highlight any actions following a con-

sultation. In terms of design this would call for appropriate feedback mechanisms to be included in STEP.

4. **Engage Young People with High Social Influence**: Those Young People who have high social influence are likely to engage others young people. These people should be nurtured and encouraged to remain engaged.
5. **Leadership 'mechanisms':** aspects of action such as leadership can be nurtured with appropriate gamification/reputational mechanisms. Existing gamification features of STEP prototype (e.g. leaderboard) should be adapted to support this.

6. Conclusion: Future Work for Future Engagement

In this paper we presented a novel approach to the use of a digital cultural probe for supporting the design of e-Participation, in particular linking the engagement in social issues (environmental decision making) with the engagement in the use of an e-Participation platform. The novelty of our approach has been in conducting the digital cultural probe directly within the prototype of the platform, showing that it is possible to simultaneously investigate both aspects. We acknowledge that our approach also presents some limitations, such as participants possibly being influenced by previous posts and the fact that we worked in English whereas participants were from several EU countries, due to the requirement of participant interaction. However the final e-Participation platform interface will be in the specific national languages, thanks to the use of language translation technologies[9]. Despite these limits, our probe conducted within the platform prototype has delivered relevant results in the form of actions/recommendations to be undertaken during the piloting of the e-Participation platform. We claim that **Probing with the Prototype** is a useful approach for the design of e-Participation that can be replicated by other projects. The similarity with familiar social networking sites may increase youth engagement with the platform.

This Cultural Probe activity has given us good insights into how young people can engage with environmental issues and with an e-Participation platform. STEP intends to further utilize the participation of young people by carrying out Co-Design sessions with them to enable a degree of personalization for the platform for each of the pilot partners and to ensure the design of the core platform functionalities meets their requirements. So far five participatory or co-design sessions have been carried out with young people (and a further two with policy makers) including a session on trust to develop solutions for better reciprocal trust and collaboration. A remote but synchronous co-design session is also planned, again using the STEP prototype which has 'round table' functionality that will allow users to engage in a co-design despite being located in different European countries. Our aim is to investigate several issues such as; the appropriate mechanisms supporting youth leadership within the platform, for example the co-design of a badge system [30]; the important issue of trust and finding the appropriate way to feed back the results of e-participation to participants.

[9] These are provided by project partner Linguatec - http://www.linguatec.net/

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